

Snake gourd Market Access Plan

TA-6782 IND: Enhancing Market Linkages for Farmer Producer Organizations

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1 Crop Background

Snake gourd is believed to be originated from India as a wild crop but was later on domesticated. Snake gourd is a green vegetable with long shape and slight fuzzy texture crop from Cucurbitaceae family. It is a tropical crop and is highly nutritious and rich source of vitamins. In different regions, this crop is known with different name like snake tomato in Nigeria and pakupis in Philippines. It is a common vegetable in Indian Subcontinent, South Asia region including India, Nepal, Bangladesh, Pakistan, Sri Lanka.

1.1 Global Scenario

1.1.1 Production

- Globally major snake gourd growers are Sri Lanka, Thailand, Nigeria, Malaysia, and China.
- It is also cultivated in regions like Southeast Asia, Australia, west Africa, Latin America, and the Caribbean region. Mostly, snake gourd is grown for its immature fruit to be cooked as vegetable like Zucchini.
- Normally Snake gourd takes 90-120 or more days for harvest from planting.
- Sandy loam soils rich in organic matter with good drainage and the pH ranging from 6-5-7.5 are preferred for snake gourd cultivation.

1.1.2 Global Trade

- The global trade of snake gourd is minimal due to limited and regional consumption. Snake gourd is a major vegetable only in Indian (and few other Indian-subcontinent countries).
- The production and trade of snake gourd is limited within consuming countries leading to less global exports and imports of the vegetable.
- UAE, Qatar, and Kuwait and Singapore are the top importer of snake gourd, importing primarily from Africa and eastern countries.
- The Top 3 exporters of snake gourd are India with 11,711 shipments followed by Dominican Republic with 594 and Thailand at third spot with 448 shipments.
- As per Valka's India export data snake gourd shipments from India stood 11.7K, exported by 539 Indian Exporters to 1005 buyers.

Table 1: Snake gourd exports from India 2020-21 to 2023-24						
Country	2021-22		2022-23		2023-24	
	Qty MT	INR Lakhs	Qty MT	INR Lakhs	Qty MT	INR Lakhs
U A E	148.4	93.83	127.56	73.62	115.35	69.37
Singapore	0.38	0.15	0.59	0.31	33.45	20.35
Bahrain	7.05	6.23	12.23	10.62	20.84	18.69
USA	0.3	0.37	0	0	8.12	12.94
Qatar	46.33	31.89	35.97	24.65	10.3	9.8
Bhutan	6.03	1.8	22.29	5.99	39.24	9.38
Kuwait	30.12	19.49	11.38	7.43	8.84	6.15
Saudi Arab	3.22	2.92	6.86	6.97	6.96	5.14
United Kingdom	1.6	2.14	1.05	1.51	3.81	4.06
Oman	3.27	2.17	6.29	3.98	5.95	3.91
Maldives	0	0	0.03	0.03	1.78	1.47
Malta	0	0	0	0	0.41	1.43
France	0	0	0	0	1.08	0.78
Australia	0	0	0	0	0.32	0.71
Italy	0	0	0	0	0.09	0.12
Argentina	0.4	0.14	0	0	0	0
Canada	0.06	0.09	0.03	0.06	0	0
Ireland	2.56	3.72	1.55	1.62	0	0
Total	249.7	164.94	225.83	136.79	256.54	164.3

Source: DGCIS Annual Export; Product Description country wise about Snake gourd(07099350) (apeda.gov.in)

Table 2: Snake gourd exports from ports in India 2020-21 to 2023-24

Port	2021-22		2022-23		2023-24	
	Qty Mt	INR Lakhs	Qty Mt	INR Lakhs	Qty Mt	INR Lakhs
Cochin Airport	122.61	88.78	126.2	80.4	118.22	74.83
Bangalore Airport	0.22	0.13	0.27	0.14	32.82	20.24
ACC Calicut, Khairpur Airport	1.62	1	1.96	1.19	11.82	13.6
ICD Thar dry Port	0	0	0	0	8.12	12.94
Kannur Air Cargo	19.78	10.73	35.53	22.02	18.45	12.13
Jaigaon ICD	5.96	1.79	20.33	5.47	38.64	9.22
Kolkata Airport	18.84	17.88	13.63	10.85	4.98	5.47
Hyderabad Airport	1.93	1.17	0	0	2.75	2.58
Chennai Air	1.3	1.15	0	0	1.38	1.97
Cochin Sea	29.77	15.99	5.6	2.13	3.48	1.73
Ahmedabad air Cargo Complex	0	0	0.08	0.17	0.58	1.63
Trivandrum Airport	0	0	0	0	3.63	1.56
Nhava-Seva Sea	20.68	11.76	5.68	3.79	2.9	1.5
ACC Goa, Dabolim Airport	0.21	0.42	0.24	0.47	0.9	1.37
Mumbai Air	23.06	12.66	10.66	6.8	2.2	1.28
Tuticorin Sea	0.02	0.01	0	0	1.46	1.04
Badarpur Airport	0	0	1.76	0.79	1.79	0.6
Sez Cochin	0	0	0	0	1.46	0.17
Air Cargo Trichy Tamil Nadu	1.02	0.43	0.58	0.62	0.21	0.16
Mangalore Air Cargo	2.18	0.89	0.39	0.67	0.15	0.1
LCS Nagar kata Jalpaiguri	0	0	0	0	0.26	0.08
Chamurchi road/ Railway	0.07	0.01	1.95	0.52	0.28	0.06
Madurai Airport	0	0	0.07	0.07	0.02	0.02
LCS Loksan	0	0	0	0	0.06	0.02
Lucknow Air Uttar Pradesh	0.14	0.04	0.52	0.29	0	0
Pune Air Cargo Maharashtra	0	0	0.33	0.33	0	0
Chennai Sea	0.16	0.06	0	0	0	0
Delhi Airport	0	0	0.03	0.06	0	0
Katupalli Port/ Tiruvallur Sea	0.09	0.03	0	0	0	0
Total	249.66	164.93	225.81	136.78	256.56	164.3

Source: DGCIS Annual Export; Product Description country wise about Snake gourd(07099350) (apeda.gov.in)

1.2 Indian Scenario

1.2.1 Production

In India, snake gourd is mostly cultivated in Kerala, Andhra Pradesh, Tamil Nadu and Karnataka. It is also grown in Punjab, Delhi, Uttar Pradesh, Bihar, Gujarat, and parts of Maharashtra. Kerala and Andhra Pradesh also have good volume of production. The area under snake gourd cultivation in India is 12.79 thousand hectares with a production of 169.46 thousand MT (National Horticulture Board database 2014-15). The states Kerala, Karnataka, Tamil Nadu, Kerala, Andhra Pradesh account for more than 50% of India's Snake gourd production.

1.2.2 Trade – Domestic

Snake gourd is traded across the country, through private / unorganized channels and through the Mandis. The price in domestic trade is dependent on supply-demand dynamics. Major markets for snake gourd are the mandis either in large urban centers or near high snake gourd producing regions. Mumbai is major market for snake gourd consumption. Indian snake gourd arrival is majorly from Konkana region. July and January are major season for cultivation in India but in Maharashtra it is grown in rabi season, normally it takes 90-120 days to harvest from plantation. At harvest fruit must be light green- white with strips, thick, juicy, and seeds should be soft.

State	2021-22		2022-23		2023-24	
	Qty MT	INR lakhs	Qty MT	INR lakhs	Qty MT	INR lakhs
Kerala	173.78	116.5	169.29	105.75	157.07	104.02
Karnataka	2.4	1.02	0.66	0.81	32.97	20.34
West Bengal	24.8	19.67	33.97	16.33	43.88	14.78
Gujarat	0	0	0.08	0.17	8.7	14.57
Tamil Nadu	2.6	1.69	0.66	0.68	3.07	3.19
Maharashtra	43.74	24.42	16.67	10.92	5.09	2.78
Telangana	1.93	1.17	0	0	2.75	2.58
Goa	0.21	0.42	0.24	0.47	0.9	1.37
Uttar Pradesh	0.14	0.04	2.29	1.08	1.79	0.6
Sikkim	0.07	0.01	1.95	0.52	0.34	0.08
Delhi	0	0	0.03	0.06	0	0
Total	249.67	164.94	225.84	136.79	256.56	164.31

1.3 Maharashtra Scenario

Maharashtra ranks fifth in area and seventh in production of vegetables. Generally, snake gourd is grown commercially in kharif and zaid season. Considering the income and employment generating capacity of this crop, many farmers had started growing snake gourd in Konkan region. Major production of snake gourd in Maharashtra is the western part of the State, Cultivation of snake gourds is reported mostly in Raigad, and Palghar districts. Area of snake gourd cultivation is more in Vasai tehsils of Palghar and Khalapur, Panvel, Tala, Mhasala & Shri Vardhan tahsils of Raigad district.

Table 4: Maharashtra major snake gourd producing regions			
District	Tehsil	Area (Ha)	Production (MT)
Palghar	Vasai	11.6	107
	Khalapur	26.9	21
Raigad	Karjat	0.5	60
	Panvel	38	570
	Tala	1.7	14
	Mhasala	2.4	36
	Shri Vardhan	2.8	42
	Total	83.9	850

Source :DGCIS Annual Export; Product Description country wise about Snake gourd (07099350) (apeda.gov.in)

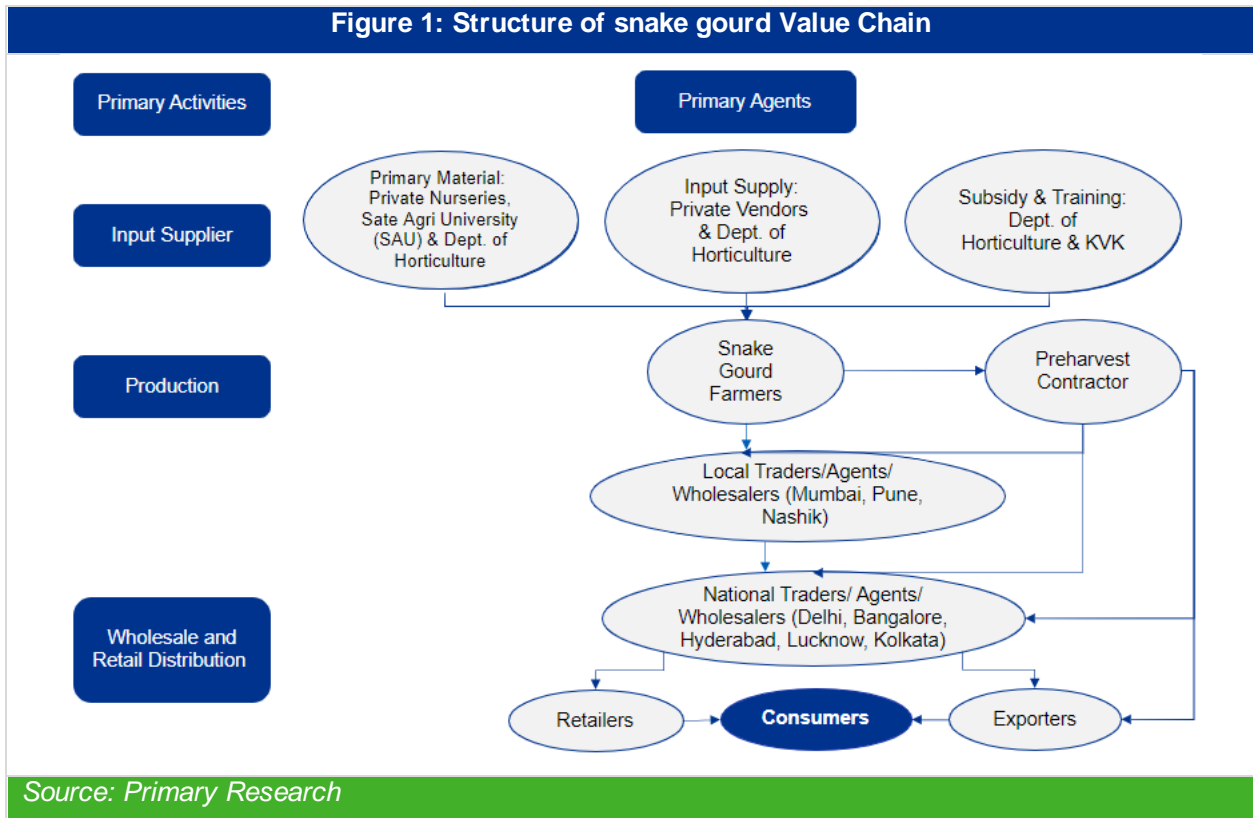
Market arrival data for snake gourd from major markets in Maharashtra

Table 5: Market arrival data for snake gourd from major markets in Maharashtra	
Markets	2022-23 Arrival in MT
Bhusaval	0.3
Islampur	16.1
Klayan	3.0
Kamthi	0.1
Karad	89.1
Mumbai	1160.0
Panvel	2236.6
Pen	87.0
Pune	560.9
Pune -Moshi	5.1
Ratnagiri	11.3
Vadgaon peth	23.5
Total	4193.0

Source: DGCIS Annual Export; Product Description country wise about Snake gourd(07099350) (apeda.gov.in)

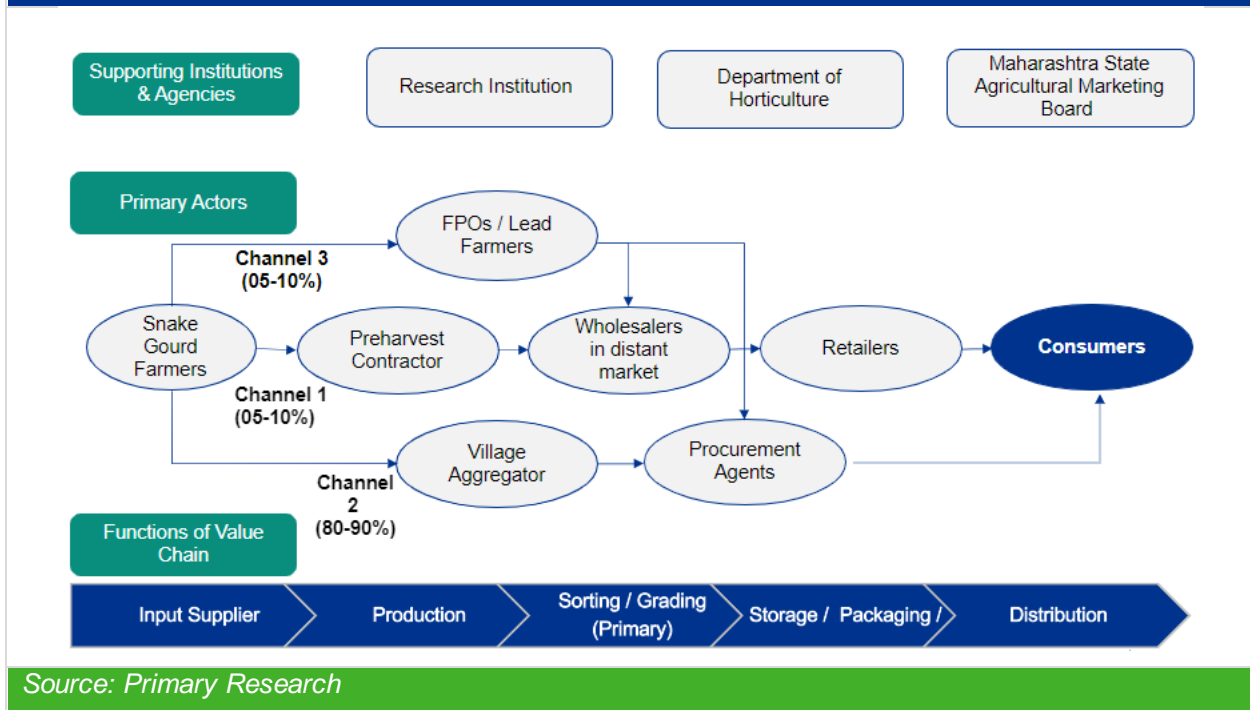
1.3.1 Value Chain Overview

The snake gourd value chain starts from seed companies supplying seedlings to nurseries, who in turn supply saplings to farmers. Trainings are provided through government departments and Krishi Vigyan Kendras. Snake gourd farmers sell their produce to local traders or pre-harvest contractors harvest and supply to the required markets. Snake gourd are supplied from local mandis to major consumption markets across the country. The structure of snake gourd value chain is provided in the figure below.



There are 3 primary marketing channels snake gourd to reach consumers from farmers. The commodity flow through these marketing channels is detailed in the figure below.

Figure 2: Commodity flow and trade analysis of snake gourd



2 Marketing Strategy

Individual farmers and FPOs face issues in accessing profitable markets for their produce. Key challenges for them are their remote locations, high transportation costs, limited market information / knowledge of requirements, and the lack of business skills. The following market strategy has been prepared with a focus on providing information that helps FPOs in accessing reliable and profitable markets, while ensuring their produce meets market standards. In addition, it is envisaged that the FPOs have better bargaining power, some of the value chain activities are shifted towards them and there is a win-win situation for both FPOs and associated value chain actors / market players. Also, while providing information on opportunities, associated risks have also been highlighted. Prior to a detailed market segment-wise strategy, some of the common and cross-cutting interventions that are required at the end of FPOs for better market access are given below:

Commodity resource mapping and Know Your Farmers (KYF): FPOs should keep information on acreage of cultivable land under different crops, approximate marketable crop available with the farmers in the season, etc. This will help FPOs to have an idea of the volumes to be handled in the season and plan to effectively market their produce eventually.

Aggregate large volumes of produce: FPOs can establish long-term business relationship only if they are able to consistently supply sufficient quantity of produce, as per the buyer requirements. FPOs can increase procurement catchment area to consistently meet minimum requirement quantities.

Flexibility with payment terms: Many markets segment function on credit cycle, which can vary from as low as 5-7 days to as high as 30-60 days. FPOs should have sufficient working capital to made credit cycle and farmer payments.

Have good market intelligence: FPOs should have good market intelligence to decide on store / sell decisions and to determine which market to send the produce to. Market intelligence can be collected through online sources such as government data and news articles, and through on-ground network of contacts in different parts of the country. Keeping a tab on market situations in target export markets will help FPOs in market entry and expansion.

Appointment of manager: FPOs can appoint a manager for its market linkage business. This will help in better sales planning, coordination with buyers for purchase and payment timelines. It can also appoint a manager for procurement activities. For FPOs to expand its business and supply to more buyers, it is necessary to have strong procurement, and appointment of manager can help in establishing the same.

Diversify supply options: All types of markets and customers come with both opportunity and risks for FPOs. This document also details on potential risks that FPOs might face in each market. To mitigate risks, FPOs should ensure that it deals in multiple markets and with multiple customers in each market. In addition, to get quality commensurate pricing, FPOs need to supply each market with its required quality of produce.

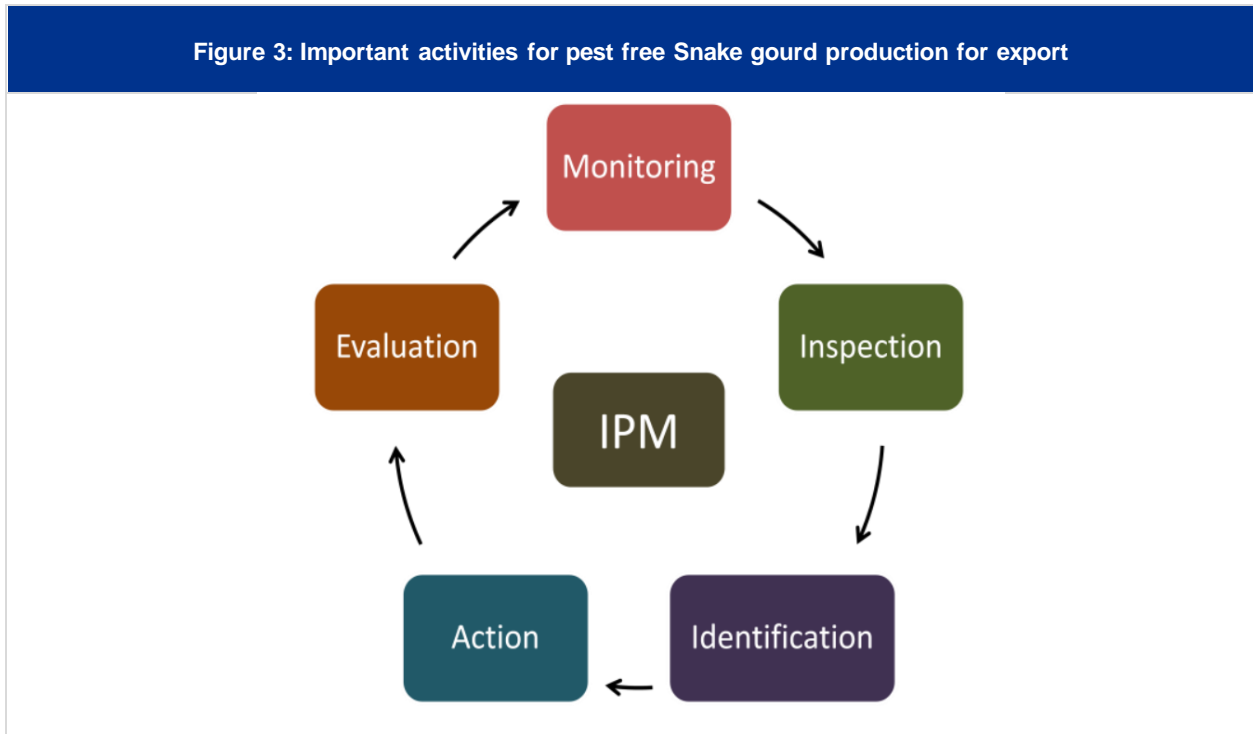
This section details out the strategy that the FPOs can adopt to supply snake gourd in the major market segments, namely, 1) Export Markets, 2) Domestic Markets, 3) Organized retail and eCommerce. Key components of this section are:



2.1 Export Markets

Export markets are regions / countries that snake gourd is exported or can be exported from India. Export markets are classified as Indian Sub-Continent, the Middle East, and Other Export Markets for snake gourd.

2.1.1 The important activities for pest free snake gourd production for export



Integrated Pest Management Strategies

The following Good Agricultural Practices should be adopted for the management of various pests of snake gourd:

- Destruction of debris, crop residues, weeds & other alternate hosts
- Frequent raking of soil beneath the crop to expose and kill the eggs, grubs & pupa, hand collection and destruction of infested leaves and fruits.
- Adoption of proper crop rotation and avoid growing of cucurbit crops in sequence.
- Use of resistant and tolerant varieties recommended by the State Agricultural Universities of the region. Early maturing varieties are less affected by fruit flies than later ones.
- Slight raking of soil during fruiting time and after the harvest to expose pupae from the soil.
- Use cue-lure traps to attract *B. cucurbitae* males.
- Use fish meal trap @ 10-15 nos/acre against fruit fly.
- Use 10 banana pulp traps/acre against fruit fly-mix 20gm banana pulp, 3 drops of palm oil and keep in plastic container.
- Cover fruits with polythene/ paper bags to minimize fruit fly infestation.
- Conserve predators such as Pennsylvania leather wing beetle (*Chauliognathus pensylvanicus*); larvae of which feed on pumpkin beetle larva.

- Conserve parasitoids such as *Celatoria setosa* (grub)
- Use well decomposed FYM @ 8-10 tons per acre or wormi-compost @ 5 tons per acre treated with *Trichoderma* sp. and *Pseudomonas* sp. @ 2 kg per acre as seed / nursery treatment and soil application for controlling soil borne disease such as root rot, wilting.
- Apply neem cake @ 100 kg per acre for reducing nematode population.

2.1.2 The Middle East

The Middle East market includes UAE, Qatar, Kuwait. Indian subcontinent population in middle east hold good demand for Snake gourd.

2.1.2.1 Characteristics of the Segment

The Middle East market has significant Indian diaspora and Indian origin population especially UAE, Qatar, Singapore, and Kuwait. Hence, this market has significant demand for many Indian horticulture crops. The purchasing power of consumers in these markets are also high, and they demand high quality fruits and vegetables.

2.1.2.2 Competition

Other countries:

Snake gourd is produced in good quantities across the India subcontinent and African countries for their domestic consumption and for exports. Sri Lanka, Nepal, Bangladesh, Thailand, Nigeria, are the major the largest producer of Snake gourd.

Other states: Major exporters of snake gourd to the Middle East apart from Maharashtra are Kerala, Karnataka, Tamil Nadu, and Telangana. Since, the quantity of snake gourd exported less, leading snake gourd exporters are those states that export regularly vegetables to the Middle East market.

2.1.2.3 Maintaining Quality Standards and Supply

Most target countries for export of snake gourd in the Middle East are high income countries. Accordingly, only superior quality is preferred by the consumers in those markets.

Varieties	No preferred varieties
Colour	Greenish white with Stripes
Size	Average 140-160 cm in length
Maturity	When pressed with thumbnail, it penetrates easily into the flesh, Soft snake gourd indicates over maturity and are not acceptable

Snake gourd is exported only in small quantities by most of the exporters. Hence, exporters generally prefer to procure from traders, instead of farmers. Additionally, traders provide assured quality to exporters making it convenient for exports to procure from traders. Some large-scale exporters are establishing backward linkages for farm procurement of Snake gourd. FPOs can leverage this and supply to these exporters required quality and quantity to fetch premium prices.

FPOs can develop the following infrastructure to make their produce suitable for exports to Middle East markets – packhouse for sorting, grading, and packaging. FPOs can directly package as per requirement of the exporter and provide Snake gourd that are ready for export. The infrastructure can also be utilized to supply to premium domestic markets such as Organized Retail and eCommerce. Snake gourd is exported only by air to the Middle East.

2.1.2.4 Pricing

The purchase price of snake gourd by exporters is towards the higher end of the prevailing domestic market prices. Hence, FPOs can sell in the range of ₹20-40 per kg to exporters.

FPOs will incur labor costs for sorting, grading, and packaging in the range of ₹1-3 per kg, which are required for exports to middle east. For packaging, cost of 2.5-5 kg CFB boxes is around ₹5-10 per box.

Logistics cost to Mumbai airport is also to be accounted when deciding on pricing Establishing Connects

To export produce it is necessary to understand the major export routes and to establish connects with relevant companies / personnel. The selection of export route for an FPO should be done as per the quality of produce available for export, human capital to handle export related compliances, financial capabilities, and risk-taking ability.

Exports can be done through two routes:

Export Route	Description
Through an exporter from India	Companies / individuals specialize in exporting of agriculture and horticulture commodities to specific export markets. FPOs can supply produce as per required quality specifications to the exporters. The exporters buy the products from FPOs and then exports the products.
Through an importer at the importing country	FPOs can identify importers in the importing country. Importers are companies / individuals that obtained the necessary permissions in the importing country to import specific agriculture and horticulture commodities

Export Route	Establishing Connects
Through an exporter from India	<ul style="list-style-type: none"> • Trade fairs (physical and virtual) conduct by APEDA. Details are published on https://apeda.gov.in/apedawebsite/trade_promotion/International_trade_event • Other National Trade Fairs conducted by various Organizations / Association. These events are published on various platforms such as: <ul style="list-style-type: none"> ○ https://krishijagran.com/events ○ https://www.kisaanhelpline.com/agriculture-events ○ https://www.2exhibitions.com/agriculture-and-forestry/ • Online trade websites such as www.indiamart.com and www.exportersindia.com • Buyer-Seller meets organized under the MAGNET project
Through an importer at the importing country	<ul style="list-style-type: none"> • Trade fairs (physical and virtual) conduct by APEDA. Details are published on https://apeda.gov.in/apedawebsite/trade_promotion/International_trade_event • Other National Trade Fairs conducted by various Organizations / Association. These events are published on various platforms such as: <ul style="list-style-type: none"> ○ https://krishijagran.com/events ○ https://www.kisaanhelpline.com/agriculture-events ○ https://www.2exhibitions.com/agriculture-and-forestry/ • International events on horticulture trade are regularly published on the website of CBI – a center for promotion of imports from developing countries to Europe. www.cbi.eu/events • www.freshplaza.com, and https://www.hcisingapore.gov.in/events also provides an event calendar on important global fairs for horticulture crops

2.1.3 Advantages and Risks Associated

Each export route mentioned in the above sub-section comes with its risks. Not all export routes are suitable for all FPOs, and it is necessary for FPOs to understand the risks before pursuing exports through any of the routes.

Export Route	Risks / Disadvantages	Advantages
Through an exporter from India	<ul style="list-style-type: none"> • Significant margin from the final export price is taken by the exporter. • FPOs cannot make significant export-oriented investments as export orders may not be assured. Exporters can procure equivalent 	<ul style="list-style-type: none"> • Exporting through this route is suitable for all FPOs, especially for FPOs that handle small quantities.

Export Route	Risks / Disadvantages	Advantages
	<p>quality from any other seller at lower prices, if available</p> <ul style="list-style-type: none"> ● Countries can ban import of Snake gourd from India due to reasons such as repeated non-compliance to MRLs or pest infestations. These are outside the control of the FPO, and can significantly affect FPO's business in case it has high exposure to that export market 	<ul style="list-style-type: none"> ● Payment terms from exporters to FPOs can be for shorter credit time. ● Export compliance is handled by the exporter – only quality adherence is taken care by FPOs
Through an importer at the importing country	<ul style="list-style-type: none"> ● FPO should be able to send the minimum required quantity per consignment consistently. This is possible only through strong procurement (from its member farmers, and other growing regions) ● Payment default by importers in case the FPO does not take precautionary measures like Letter of Credit ● Credit timelines for payment from the importer can be as high 30 to 60 days. ● FPO requires proper and complete knowledge on export compliance requirements of the importing country. ● Rejection of consignment by importing country – shortfall in compliances. Especially for European and North American markets ● Countries can ban import of Snake gourd from India due to reasons such as repeated non-compliance to MRLs or pest infestations. These are outside the control of the FPO, and can significantly affect FPO's business in case it has high exposure to that export market 	<ul style="list-style-type: none"> ● Higher margins ● Long-term business opportunity. FPO can become an exporter for other FPOs / market players. ● Increased exports through volume and by adding other crops in which the FPO is dealing

2.2 Domestic Markets

Domestic markets here are the government notified mandis and private traders in large cities across the country.

2.2.1 Characteristics of the Segment

Domestic markets consume all grades of snake gourd, as production is minimum. The demand from domestic market is constant throughout the year, while the pricing is based on day-to-day supply demand dynamics.

Access to different domestic markets across the country can be beneficial to FPOs as they can act as good hedge against price risk. Lower prices in one region do not translate to low prices in another region. Hence, FPOs can sell their produce across different domestic markets.

2.2.2 Competition

Due to low production in the state, Maharashtra is a net consumer of snake gourd. Snake gourd from Maharashtra is not usually sent to other states. Hence, competition for Maharashtra FPOs are those states that supply snake gourd into the state. Snake gourd mainly comes from Karnataka and Tamil Nadu to Maharashtra. Both the states are top producers of Snake gourd in the country, cultivating more quantity than Maharashtra.

2.2.3 Maintaining Quality Standards and Supply

Domestic markets accept all grades of snake gourd as there is demand for all grades at respective price points. Grading pattern would differ from market to market and from season to season.

Generally, snake gourd of size 140 – 160 cm and greenish white in colour with white stripes are the most preferred snake gourds for domestic as well as export markets. It should be firm, free from defects and pest infestation.

Currently, sorting and packaging of snake gourd is done by traders and not farmers. These activities can be done by FPOs to fetch higher prices for their produce, and also to get quality commensurate pricing. FPOs can invest in packhouse infrastructure to clean sort and package their produce. Snake gourd is delivered to market either in plastic crates (20 kg per crate) or in large polythene packets (20 kg packs).

Grade-wise sales (sorted) of snake gourd is not practiced across all mandis or commission agents / traders. Hence, FPOs intending to sort and supply their produce to domestic markets should ensure that suitable buyers are available to pay a premium price for their produce.

2.2.4 Pricing

Pricing in domestic markets depends on the day-to-day supply-demand dynamics. Hence, FPOs can command good price only by supplying good quality produce to the market. FPOs can sort and grade their

produce and get premium pricing for top grade produce. But practice of buying graded snake gourd is not prevalent in all markets, as the activity is done by the commission agents or traders, and further supplied to different channels.

For supplying to other domestic markets in the country, it is necessary to understand the pricing trends during the concerned week in those markets. Supplying to markets outside the state might not always fetch better prices for the FPOs, especially since Maharashtra is a net consumer of snake gourd. Costs related to transportation and loss of quality / weight during transportation should also be accounted.

www.agmarket.gov.in is the Government portal that provides information on the maximum price, minimum price, and modal price of snake gourd at all markets in a particular day / week / month where snake gourd is being traded. FPOs can use the portal to understand the pricing trend before sending their produce to distant Mandis.

Domestic markets tend to be quality agnostic, hence do not usually pay premium for good quality produce. It also prefers all quality produce so that it can supply to its wide customer base. Selling in domestic markets (through Mandis, traders) may not be the most profitable channels for the FPOs. FPOs that can sort and grade their produce, should have sell through other channels that require specific quality of Snake gourd. Nonetheless, domestic markets are an important channel as they have consistent demand.

2.2.5 Establishing Connects

FPOs can supply to domestic markets either by taking their produce for auction at mandis or by directly supplying to traders in different markets. Connects can be established through visits to mandis in different cities to meet commission agents.

2.2.6 Advantages and Risks Associated

Selling to domestic markets (other than local mandis) decreases the price risk significantly. When prices are low in nearby markets, FPOs can sell their produce to other domestic markets wherever feasible. This acts as a significant hedge against price variations in the nearby markets.

Risk of delayed payments or payment defaults is higher when selling to distant domestic markets in comparison to selling in nearby markets. FPOs should also be able to send a complete truck load for optimal logistics cost, thereby should have strong procurement and consistent supply.

2.3 Organized Retail and eCommerce

Organized retail and eCommerce are the fastest growing marketing channel for horticulture crops. organized retail includes large national retail players like Reliance, More, and other regional retail

companies. Major eCommerce companies dealing in horticulture crops are Big Basket, Swigs, Amazon, and Flipkart. Agri supply chain startups that procure from farmers and supply to various channels such as are also categorized as eCommerce.

2.3.1 Characteristics of the Segment

The organized retail and eCommerce market targets the mid-premium to premium consumer categories. Hence, there is significant focus on quality of the produce. The companies in this market usually procure from Mandis and from traders / village-level aggregators. Over the recent years, there is significant focus from these companies to procure directly from farmers / FPOs to reduce costs and have more control over quality.

2.3.2 Competition

FPOs looking to supply to market players in this segment are competing with other FPOs located in snake gourd producing regions within Maharashtra. Snake gourd is not transported over long distance (from distant markets) to or from other markets, as it cultivated across the country. In addition, production in Maharashtra is limited. Hence, snake gourd procured in Maharashtra is usually sold within the states, and not procured for supply to other states in the country.

2.3.3 Maintaining Quality Standards and Supply

Organized retail and eCommerce companies generally require high quality (Grade A and B) produce. Converse to many other horticulture crops, medium sized vegetable is preferred in snake gourd.

Varietal Preferences	No varietal preferences
Colour	<ul style="list-style-type: none"> Greenish white with strips
Size	<ul style="list-style-type: none"> Average Size – 140-160 cm
Maturity	<ul style="list-style-type: none"> When pressed with thumbnail, it penetrates easily into the flesh. Soft Snake gourd indicated over maturity and are not acceptable
Criteria for rejection	<ul style="list-style-type: none"> Cuts and damaged, overripen and spoiled, sunburn, shriveled

FPOs should ensure that it delivers on the quality requirements of these market players consistently to build long-term business relationship. Snake gourd is procured every day / alternate day by these market players for supply to their customers. Hence, FPOs should plan harvest timeline of its farmers to enable it to supply every day the required quantity.

These market players establish multi-crop collection centers across major vegetable growing regions in the state for everyday supply to cities. FPOs would be required to supply snake gourd to the nearby collection centers.

FPOs can invest in packhouse facility for sorting, grading, and packaging of snake gourd. Supply to these market players usually does not require washing of snake gourd. Post sorting and grading, FPOs should also pack the snake gourd in desired packaging by the market players – crates or CFB boxes. Market players might also require primary packaging (packs of 250 g to 1 kg) of snake gourd in modified atmosphere packaging (perforated plastic bags).

Investing in pre-cooling facilities should be as per market demand. Pre-cooling maintains the freshness and quality of produce during long-distance transportation. Once snake gourd is pre-cooled, it is recommended that it is transported in reefer trucks, especially for long distance transportation.

2.3.4 Pricing

The pricing for this category is dependent on the prevalent regional market prices. FPOs should be able to supply at the prevalent pricing in its region. Market players can also pay a premium of around 5% for consistent and quality supply.

FPOs will incur labour costs for sorting, grading, and packing in the range of ₹1-3 per kg, which are required for supply to this segment. Since these markets take regular supply from FPOs, crates can be used to supply for supply as it reduces packaging cost due to reuse.

Entering into seasonal contracts with these companies in this segment is a win-win situation for both the parties. FPOs can supply at a reasonable and assured price, while the companies are guaranteed of required quality and quantity through the season. Pricing is decided on mutual agreement based on last season(s) markets' price trends. Prices obtained by supplying to these companies may not necessarily be higher than the market prices but FPOs can safeguard themselves against subdued low market prices during peak season.

2.3.5 Establishing Connects

Many market players in the Organized retail and eCommerce segment are actively working towards procuring from farmers and FPOs. They procure from major production regions for each crop, and hence procure from Thane, and Konkan regions from Maharashtra.

FPOs can try to establish connects with this market segment by:

- Through procurement centers of companies in surrounding region

- Through mutual connects who supply to such companies
- Listing on online trade websites such as www.indiamart.com and www.tradeindia.com
- Listing on agriculture / horticulture specific eCommerce platforms such as Bijak
- Various Government Departments / schemes conduct Buyer-Seller meets. FPOs can meet representatives from companies in this segment.
- MAGNET project's Buyer-Seller meets. These Buyer-Seller meets offer platform for FPOs to interact with various market players including Organized retailers and eCommerce players .
- Following websites give details on different events including Buyer -Seller meets that happen across the country:
 - <https://krishijagran.com/events>
 - <https://www.kisaanhelpline.com/agriculture-events>
 - <https://ficci-web.com/events>
 - <https://www.2exhibitions.com/agriculture-and-forestry/>

2.3.6 Advantages and Risks Associated

FPOs that have / can invest in building good post-harvest infrastructure can get good value for snake gourd. Making good business relationship with market players of can lead to long term benefits for FPOs. Some companies also invest in capacity building and post-harvest infrastructure such as collection centers, which the FPOs can leverage. FPOs can enter into seasonal contracts with these companies and sell at profitable prices at reduced risk. Payment default risk is lower with these market players.

These companies function on credit terms, though credit terms for FPOs can be only 3 days to 15 days. Rejections and price cuts due to quality issues can be common occurrences as they can have strict quality norms. Since these companies procure from different Snake gourd production regions and numerous

2.3.7 Pricing

FPOs may not be able to charge premium pricing for their supply consistency and quality standards. The quality required by these market players are generally available in the local *Mandis*. Hence, it is necessary to maintain the prevailing market prices when supplying to these market players.

FPOs should also account in for the cost they would incur when delivering to these market players. Low quantities with frequent deliveries that is required by this segment can lead to high logistics cost.